CORE
Metadata, citation and similar papers at core.ac.uk
Provided by Maastricht University Research Portal

Disaster management within the framework of a changing disaster landscape

Citation for published version (APA):

de Smet, H. (2017). Disaster management within the framework of a changing disaster landscape. Maastricht: Datawyse / Universitaire Pers Maastricht. https://doi.org/10.26481/dis.20171116hds

Document status and date:
Published: 01/01/2017

DOI:
10.26481/dis.20171116hds

Document Version:
Publisher's PDF, also known as Version of record

Please check the document version of this publication:

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
• The final author version and the galley proof are versions of the publication after peer review.
• The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the “Taverne” license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy
If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Download date: 04 Dec. 2019

Valorization Addendum

'Whenever science makes a discovery,
the devil grabs it while the angels are
debating the best way to use it

A. Valentine

The present dissertation investigates the issue of the mutating disaster landscape and its key objective is to facilitate a better understanding of the main consequences of those changes. However, the results of the empirical studies described in the dissertation are not only relevant to the scientific community. They also have practical implications. This valorization addendum discusses the empirical findings in a broader societal context. First the relevance of the research and the potential target groups are highlighted. Next, the implications of the findings and their innovative character are emphasized. The addendum concludes with a brief overview of the knowledge dissemination.

Relevance of the Research

Since the time people got organized in sedentary societies, they became more vulnerable to natural phenomena, as the choice of where to settle was essentially directed by their needs (Coppola, 2011). People needed water, food, fertile soil and easy access to commerce, so many societies were located in hazard-prone areas such as deltas, coastlines, rich soils on the slopes of volcanoes, etc. As human societies progressively evolved, additional types of hazards emerged (Quarantelli et al., 2006) and by the year 2000 it was estimated that 75% of the world population lived in high-risk areas which periodically experience major disasters (United Nations Development Programme, 2004).

Disaster statistics indicate a general increase in the number of disasters per time frame since the second half of the last century, with more people affected in either a direct or an indirect way, and with a significant increase of economic losses (Coppola, 2011; International Federation of Red Cross and Red Crescent Societies, 2015). Though over the years, the world has witnessed numerous disasters, people have reasonable well succeeded in developing means and procedures to cope with and survive these events based on lessons learned (Kirschenbaum, 2004). However, since the end of the last century, researchers and disaster managers have been warning for a qualitative shift in the disaster landscape. They assume that there is a strong notion that several disasters we face today are structurally different from those we had to deal with in the past (e.g.: Boin & Lagadec, 2000; Helsloot et al., 2012b; Leonard & Howitt, 2007). If such an evolution is real, we can expect that societies will be more violently affected in the future and in particular that the work of the intervening units of emergency manage-

ment organizations will be more challenged, notwithstanding the improved disaster knowledge and refined emergency management capacities and procedures.

When the context changes fundamentally, it is not enough to apply a "*more of the same logic*" (Lagadec, 2009a, p. 473) with more detailed plans and more powerful tools. Accordingly, if we want to avoid to be continually one disaster behind (Davis, 2006), we have to rethink the issue in a fundamental way, not "*open additional boxes fixing the same models*" (Lagadec, 2009a, p. 473). Hence there still remains much to learn about how to cope with modern disasters or disasters of the 21st century. The aim of the dissertation is to facilitate a better understanding of the key consequences of the mutating disaster landscape and to provide academics and practitioners with a more comprehensive view of modern disaster management. As such, we produce knowledge that is of interest to the research community, but also provide insights for "science-based decision-making" (Rodríguez et al., 2006, p. vii) by disaster managers, emergency workers, and other practicing professionals. The results of the empirical studies elaborated in this dissertation thus are not only relevant to the scientific community; they also have larger practical implications that go beyond academic impact.

Target Groups

There are several target groups for the findings of this dissertation. At first, there is the research community. Recent disasters, such as the 9/11 attacks (2001), the Southeast Asian Tsunami (2004), Hurricane Katrina (2005), and the earthquakes in Kashmir (2005) and Haiti (2010) have demonstrated that the disaster context is changing in a significant way and above all that the dominant response theories and practices have become outdated. Therefore, they remind us of the importance of systematic scientific research in order to expand our understanding on how to cope with disasters of the 21st century. The results of the empirical studies in this dissertation are also useful for managers, emergency workers and other practicing professionals. Emergency management relies on researchers to provide referents and reports offering recommendations (Rotanz, 2006). As such, the current findings also supply disaster planners and emergency practitioners with directions for what can be done to improve the means to cope with and survive future disasters. In 2011 UN Secretary-General Ban Ki-moon emphasizes that as vulnerability to catastrophes is growing faster than the world's capacity to strengthen resilience, disaster risk reduction should be a daily concern for everyone (Ki-moon, 2011). Disasters thus concern everybody, not only academics, disaster managers and emergency workers. For that reason, the knowledge gained from this dissertation may be also valuable to every citizen. Finally, disaster research is also needed to infuse the writings and materials in classrooms (Phillips, 2006). Therefore, the knowledge from this dissertation may also be valuable for educational purposes. University professors and lecturers can use the insights in their courses and class work. The results are especially

relevant for specific academic education (e.g., Master in Disaster Medicine at the Free University of Brussels, Master of Disaster Management at the University of Copenhagen, etc.) and for emergency management training programs such as the Urban Flood Management and Disaster Risk Mitigation, Short Course (UNESCO IHE Institute for Water Education Delft, Netherlands).

Activities and Services

In this paragraph, the practical implications of the findings of the dissertation are discussed. The focus is on the main target groups, being researchers and practicing professionals such as disaster managers and emergency workers. The results of the first empirical study (Chapter 2) confirm the assumed evolution toward more disasters of the 21st century which occur with greater intensity and are characterized by a greater complexity to manage. This implies that societies will be challenged to a greater extent with more people affected, and that the work of the intervening units of emergency management organizations will be more compromised. Consequently, the policy of adjusting the existing and known procedures and textbooks in accordance with lessons learned does not provide the necessary framework to manage the challenges posed by the new ballgame of modern disasters (De Smet et al., 2012). For that reason, the target groups should focus on rethinking the issue of modern disaster management profoundly if we want to be well prepared to deal with future events. Disaster managers at the policy level and emergency workers at the operational level should therefore pay more attention to creatively 'think about the unthinkable', or as LaPorte (2007, p. 62) emphasizes: "[They] must prepare to be very surprised and no longer rely exclusively on existing plans which aim mainly at avoiding surprise".

Well considered mitigation efforts and up-to-date preparation initiatives are insufficient to guard societies against disasters occurring. Disaster response therefore remains a vital aspect of disaster management and will even become more important in the future, taking into account the trend towards more disasters of the 21st century. The results of the second empirical study of the dissertation (Chapter 3) demonstrate that the response phase of the disaster management life cycle evolves as a global process through three succeeding stages (paralysis, operational response and strategic response) encompassing important sub-processes such as the gradual buildup of capacities, the coordination process and the event assessment process. The findings offer disaster management practitioners a new angle to look at the response activities. The described event assessment process is of utmost importance for disaster managers and emergency workers when they face events which are not understandable in terms of past disasters (Gundel, 2005; Hills, 1998). In such case, they do not have readymade responses, so they must 'take' and 'make' time to assess the event and dare to call into question acquired paradigms. The leading authorities of disaster management decision

teams must exhibit innovation and take initiative during extremely trying circumstances (Townsend, 2006) in order to make qualitative decisions aiming at stabilizing the situation, preventing further damage, and preparing recovery activities to bring things back to normal. Disaster decision-making thus is very intertwined with leadership.

Though leaders play a key role in facilitating the decision-making process (e.g. Durham et al., 1997; Zaccaro et al., 2001), it still remains unclear which leadership style yields the best team performance (e.g. Ensley et al., 2006; Lorinkova et al., 2013). Exercising leadership in managing disasters of the 21st century, which are of significant novelty, differs considerably from leading in routine emergencies (Leonard & Howitt, 2007; Leonard & Howitt, 2012). The results of Chapter 4 of this dissertation offer valuable insights for decision-making authorities when managing disasters. The findings of an experimental setup reveal that decision-making teams led by a directive leader make more accurate decisions when confronted with routine decision-making tasks, whereas teams led by an empowering leader outperform directive leaders when a team engages in non-routine decision-making tasks. The findings also demonstrate that teams led by a directive leader make decisions faster than teams with empowering leaders, independently of whether the team engages in routine or non-routine decision-making tasks, but that they are particularly fast in routine situations as compared to those led by an empowering leader. Of particular interest is the consideration of decision performance as a combination of decision accuracy and decision speed. When a team engages in routine decision-making tasks, a directive leadership style is best suited for enhancing team decision-making (i.e. making accurate and fast decisions). When considering non-routine situations, both directive and empowering leadership style can lead to high decision performance. Directive leadership results in fast but less accurate decisions, whereas empowering leadership guarantees accurate but slower decision-making. The determination of which leadership style is best suited depends on the weight of the constituent criteria of decision performance, accuracy or speed. These insights underline that decision-making authorities should easily move back and forth along the continuum of participation in decision-making, (i.e. from directive to empowering leadership and vice versa) in order to obtain the best decision performance.

Innovation of the Research

Prince's dissertation (1920) on the 1917 explosion in the Halifax harbor is considered to be the first methodical study of disaster (Scanlon, 1988). Since then, a lot of research has been done to develop innovative and more efficient means and procedures to decrease the adverse impact of disasters on societies. As such, our study complements existing disaster research and therefore is not necessary new and innovative.

However, the innovation of the research lies in the consideration of the qualitatively evolving disaster landscape. In the first instance, we found empirical confirmation of a

trend towards more disasters of the 21st century, which add to the traditional ones that have not disappeared. Many researchers emphasize that these disasters of the 21st century take on new dimensions. They strike with greater intensity (Coppola, 2011; Lagadec & Carli, 2005) and are of a much greater complexity to manage (Boin & Lagadec, 2000), essentially characterized by a significant novelty (Leonard & Howitt, 2012). When dealing with traditional disasters, lessons of the past still have their place and the developed toolkits and procedures remain meritorious (Lagadec, 2006). Though, when the context changes, accepted theories and practices become outmoded and need to be revisited entirely and therefore academics should above all focus on a new paradigm for disaster research (Quarantelli, 1998). The similar shift in mindset is required from disaster managers and emergency workers. Merely adjusting existing procedures and capacities no longer suffice to deal with disasters of the 21st century. A new and different approach, including open questioning and thinking out of the box, is needed if we want to avoid being continually one disaster behind (Davis, 2006). Therefore, the findings of the dissertation provide some lines of thought of what can and should be done. At first, they shed some light on a new and fresh approach of the response phase of the disaster management life cycle which is considered as an unfolding global process of succeeding stages and sub-processes instead of the traditional enumeration of potential activities. Next, we offer insight for leaders of disaster decision making teams in emphasizing that exercising leadership in managing disasters of the 21st century, which are of significant novelty, differs significantly from leading in routine emergencies (Leonard & Howitt, 2007; Leonard & Howitt, 2012).

Knowledge Dissemination

The empirical chapters of the dissertation are based on a self-contained research and the results have been, and will be, disseminated in several ways. First, the early versions of the articles have been presented at different national and international workshops and conferences, which were attended by both researchers and professionals from the disaster research community. The studies presented in the Chapters 2 and 3 have already been published in international journals. The study described in Chapter 4 has recently been finished and will be submitted to an international peer reviewed journal. Additionally, the findings of the research have been communicated through lectures given to researchers and students at Maastricht University, the Belgian Royal Military Academy, the Belgian Higher Institute for Emergency Planning, and the Université de Mons, as well as through scientific poster presentations.